

General

Title

Disease-specific antibiotic prescribing: percentage of female patients older than 18 years with cystitis/other urinary infection prescribed antibacterials for systemic use receiving the recommended antibacterials.

Source(s)

Adriaenssens N, Coenen S. Disease-specific antibiotic prescribing quality indicators report. Antwerp (Belgium): European Surveillance of Antimicrobial Consumption (ESAC); 2010 Sep 10. 55 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of female patients older than 18 years with cystitis/other urinary infection prescribed antibacterials for systemic use receiving the recommended antibacterials (nitrofurantoin derivatives, trimethoprim and derivatives, or other antibacterials).

This measure gives an estimate of appropriate antibiotic use for cystitis/other urinary infection.

Rationale

Antibiotic use is increasingly recognized as the major selective pressure driving antimicrobial resistance (Goossens et al., 2005; Malhotra-Kumar et al., 2007). In addition, antibiotic use requires more resources, motivates patients to reconsult and exposes them to the additional risk of side effects, whereas underprescribing might be associated with higher risk of complications of untreated infections (Petersen et al., 2007).

The third largest volume of antibiotics prescribed in ambulatory care is for cystitis/other urinary infection. Most guidelines recommend antibiotic prescribing for adult women. Nitrofurantoin derivatives, trimethoprim and derivatives, or other antibacterials are recommended as first line therapy for this indication in ambulatory care. In case of pregnancy penicillins with extended spectrum are advised. The recommended antibacterials were selected taking into account their effectiveness against relevant pathogens, clinical benefit and cost. Their use can limit the use of other antibiotic classes, either not effective or to be reserved for resistant cases. Unnecessary use of any antibiotic will also select for resistance.

Evidence for Rationale

Adriaenssens N, Coenen S. Disease-specific antibiotic prescribing quality indicators report. Antwerp (Belgium): European Surveillance of Antimicrobial Consumption (ESAC); 2010 Sep 10. 55 p.

Goossens H, Ferech M, Vander Stichele R, Elseviers M, ESAC Project Group. Outpatient antibiotic use in Europe and association with resistance: a cross-national database study. Lancet. 2005 Feb 12-18;365(9459):579-87. [PubMed](#)

Malhotra-Kumar S, Lammens C, Coenen S, Van Herck K, Goossens H. Effect of azithromycin and clarithromycin therapy on pharyngeal carriage of macrolide-resistant streptococci in healthy volunteers: a randomised, double-blind, placebo-controlled study. Lancet. 2007 Feb 10;369(9560):482-90. [PubMed](#)

Petersen I, Johnson AM, Islam A, Duckworth G, Livermore DM, Hayward AC. Protective effect of antibiotics against serious complications of common respiratory tract infections: retrospective cohort study with the UK General Practice Research Database. BMJ. 2007 Nov 10;335(7627):982. [PubMed](#)

Primary Health Components

Antibiotic prescribing; cystitis/other urinary infection; systemic use; nitrofurantoin derivatives; trimethoprim; trimethoprim derivatives

Denominator Description

Number of female patients older than 18 years diagnosed with cystitis/other urinary infection prescribed antibacterials for systemic use (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of female patients older than 18 years diagnosed with cystitis/other urinary infection prescribed nitrofurantoin derivatives, trimethoprim and derivatives, or other antibacterials (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

- There is a wealth of information on the prevalence of resistance in human pathogens, and these data show substantial geographical differences in the proportion of resistance to various classes of antibiotics in Europe (Bruinsma et al., 2004; Goossens & Sprenger, 1998). Whereas the rates of resistance remain low in northern European countries, they are reaching alarming levels in southern and central European countries. Studies have shown that differential selection pressure of antibiotic agents may be responsible for some of these observed differences (Bronzwaer et al., 2002; Goossens et al., 2005). Consequently, antimicrobial consumption was to be monitored to accompany analogous surveillance programmes on resistance (Anon, 2002).
- The largest volumes of antibiotic prescriptions for systemic use are prescribed in primary care, with respiratory tract infections being the most common indication. More detailed analysis of antibiotic use in outpatients again showed considerable differences in overall antibiotic use, the use of the different kinds of antibiotics, and seasonal variation of antibiotic use, suggesting inappropriate antibiotic use in Europe (Adriaenssens et al., "ESAC: outpatient antibiotic," 2011; Adriaenssens et al., "ESAC: outpatient macrolide," 2011; Adriaenssens et al., "ESAC: outpatient quinolone," 2011; Coenen, 2011; Versporten et al., "ESAC: outpatient penicillin," 2011; Versporten et al., "ESAC: outpatient cephalosporin," 2011), as these striking variations cannot be explained by differences in incidence of disease alone or by differences in aetiology or resistance rates between countries.

Evidence for Additional Information Supporting Need for the Measure

Adriaenssens N, Coenen S, Versporten A, Muller A, Minalu G, Faes C, Vankerckhoven V, Aerts M, Hens N, Molenberghs G, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): outpatient antibiotic use in Europe (1997-2009). *J Antimicrob Chemother.* 2011 Dec;66 Suppl 6:vi3-12. [PubMed](#)

Adriaenssens N, Coenen S, Versporten A, Muller A, Minalu G, Faes C, Vankerckhoven V, Aerts M, Hens N, Molenberghs G, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): outpatient macrolide, lincosamide and streptogramin (MLS) use in Europe (1997-2009). *J Antimicrob Chemother.* 2011 Dec;66 Suppl 6:vi37-45. [PubMed](#)

Adriaenssens N, Coenen S, Versporten A, Muller A, Minalu G, Faes C, Vankerckhoven V, Aerts M, Hens N, Molenberghs G, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): outpatient quinolone use in Europe (1997-2009). *J Antimicrob Chemother.* 2011 Dec;66 Suppl 6:vi47-56. [PubMed](#)

Anon. Council recommendation of 15 November 2001 on the prudent use of antimicrobial agents in human medicine. *OJEC.* 2002;45:13-6.

Bronzwaer SL, Cars O, Buchholz U, MÅllstad S, Goettsch W, Veldhuijzen IK, Kool JL, Sprenger MJ, Degener JE, European Antimicrobial Resistance Surveillance System. A European study on the relationship between antimicrobial use and antimicrobial resistance. *Emerg Infect Dis.* 2002 Mar;8(3):278-82. [PubMed](#)

Bruinsma N, Kristinsson KG, Bronzwaer S, Schrijnemakers P, Degener J, Tiemersma E, Hryniewicz W, Monen J, Grundmann H, European Antimicrobial Resistance Surveillance System (EARSS). Trends of penicillin and erythromycin resistance among invasive *Streptococcus pneumoniae* in Europe. *J Antimicrob Chemother.* 2004 Dec;54(6):1045-50. [PubMed](#)

Coenen S, Adriaenssens N, Versporten A, Muller A, Minalu G, Faes C, Vankerckhoven V, Aerts M, Hens N, Molenberghs G, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): outpatient use of tetracyclines, sulphonamides and trimethoprim, and other antibacterials in Europe (1997-2009). J Antimicrob Chemother. 2011 Dec;66 Suppl 6:vi57-70. [PubMed](#)

Coenen S, Ferech M, Haaijer-Ruskamp FM, Butler CC, Vander Stichele RH, Verheij TJ, Monnet DL, Little P, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): quality indicators for outpatient antibiotic use in Europe. Qual Saf Health Care. 2007 Dec;16(6):440-5. [30 references] [PubMed](#)

Goossens H, Ferech M, Vander Stichele R, Elseviers M, ESAC Project Group. Outpatient antibiotic use in Europe and association with resistance: a cross-national database study. Lancet. 2005 Feb 12-18;365(9459):579-87. [PubMed](#)

Goossens H, Sprenger MJ. Community acquired infections and bacterial resistance. BMJ. 1998 Sep 5;317(7159):654-7. [PubMed](#)

Versporten A, Coenen S, Adriaenssens N, Muller A, Minalu G, Faes C, Vankerckhoven V, Aerts M, Hens N, Molenberghs G, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): outpatient cephalosporin use in Europe (1997-2009). J Antimicrob Chemother. 2011 Dec;66 Suppl 6:vi25-35. [PubMed](#)

Versporten A, Coenen S, Adriaenssens N, Muller A, Minalu G, Faes C, Vankerckhoven V, Aerts M, Hens N, Molenberghs G, Goossens H, ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): outpatient penicillin use in Europe (1997-2009). J Antimicrob Chemother. 2011 Dec;66 Suppl 6:vi13-23. [PubMed](#)

Extent of Measure Testing

Taking into account the scores from a relevant group of experts – professionals rather than policy makers – from a set of 21 (7x3) proposed guideline based disease specific quality indicators for outpatient antibiotic use in Europe, all seem to be relevant, that is, they have face validity and are potentially applicable.

Evidence for Extent of Measure Testing

Adriaenssens N, Coenen S, Tonkin-Crine S, Verheij TJ, Little P, Goossens H, on behalf of the ESAC Project Group. European Surveillance of Antimicrobial Consumption (ESAC): disease-specific quality indicators for outpatient antibiotic prescribing. BMJ Qual Saf. 2011 Mar 21;20:764-72. [36 references] [PubMed](#)

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Clinical Practice or Public Health Sites

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than 18 years

Target Population Gender

Female (only)

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Number of female patients older than 18 years diagnosed with cystitis/other urinary infection prescribed antibacterials for systemic use

Note: Refer to the original measure documentation for International Classification of Primary Care (ICPC-2-R) and International Classification of Diseases, Tenth Revision (ICD-10) codes.

Exclusions

Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Number of female patients older than 18 years diagnosed with cystitis/other urinary infection prescribed nitrofurantoin derivatives, trimethoprim and derivatives, or other antibacterials

Note: Refer to the original measure documentation for International Classification of Primary Care (ICPC-2-R) and International Classification of Diseases, Tenth Revision (ICD-10) codes.

Exclusions

Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Electronic health/medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Prescriptive Standard

The acceptable use ranges between 80% and 100%, i.e., taking into account the prevalence pregnancy of female patients older than 18 years.

Evidence for Prescriptive Standard

Identifying Information

Original Title

Indicator 3b: the percentage of female patients older than 18 years with cystitis/other urinary infection (ICPC-2-R: U71) prescribed antibacterials for systemic use (ATC: J01) receiving the recommended antibacterials (ATC: J01XE or J01EA or J01XX) [U71_RECOM_%].

Measure Collection Name

Disease-specific Antibiotic Prescribing Quality Indicators

Submitter

European Surveillance of Antimicrobial Consumption Network - Clinical Specialty Collaboration

Developer

European Surveillance of Antimicrobial Consumption Network - Clinical Specialty Collaboration

Funding Source(s)

The European Surveillance of Antimicrobial Consumption (ESAC) project was funded by the European Centre for Disease Prevention and Control (ECDC; Grant Agreement 2007/001).

Composition of the Group that Developed the Measure

Adriaenssens N, Coenen S, Tonkin-Crine S, Verheij TJ, Little P, Goossens H, on behalf of the European Surveillance of Antimicrobial Consumption (ESAC) Project Group

Financial Disclosures/Other Potential Conflicts of Interest

None to declare.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2010 Sep

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in October 2015.

Measure Availability

Source available from the [European Centre of Disease Prevention and Control \(ECDC\) Web site](#)

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For more information, contact the European Surveillance of Antimicrobial Consumption Network (ESAC-Net) at the ECDC at Tomtebodavägen 11a, 171 83 Stockholm, Sweden; Phone: +46 (0)8 586 010 00; Fax: +46 (0)8 586 010 01; Web site: www.ecdc.europa.eu ; E-mail: ESACNET@ecdc.europa.eu.

NQMC Status

This NQMC summary was completed by ECRI Institute on July 24, 2014. The information was verified by the measure developer on September 7, 2014.

The information was reaffirmed by the measure developer on October 13, 2015.

Copyright Statement

No copyright restrictions apply.

Production

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